

SEQUENCE LISTING

<110> Dulac, Catherine
Axel, Richard

<120> Cloning Of Vertebrate Pheromone Receptors And Uses
Thereof

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<150> 08/731,745

<151> 1996-10-18

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<170> PatentIn Ver. 2.1

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Arg Gly Leu Ser Leu Cys Thr Ser Cys Leu Leu Ser Val Leu Gln Ala
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Pro Met Ser Tyr Leu Met Gln Ser Met Phe Ser Thr Leu Leu Ala Ile
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Arg Asp Val Phe Leu Ile Ser Leu Met Val Leu Ser Thr Trp Tyr Met
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Ser Tyr Gln Leu Phe Met Val His Ile Tyr Ala Thr Val Ser Pro Phe
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Thr Asp Leu Pro Ile Gly Leu Leu Ser Leu Ile Asn Leu Leu Met Leu
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Arg Gly Leu Ser Leu Ser Thr Thr Cys Leu Leu Ser Val Leu Gln Ala
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Pro Pro His His Ile Phe Cys Ala Met Leu Phe Leu Ser Val Leu Tyr
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Met Phe Ile Ser Ser His Leu Leu Leu Ser Ile Ile Ala Thr Pro Asn
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Leu Thr Thr Asn Asp Phe Ile His Val Ser Gln Ser Cys Ser Ile Leu
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Pro Met Ser Tyr Leu Met Gln Ser Met Phe Ser Thr Leu Leu Ala Ile
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Arg Asn Val Phe Leu Ile Ser Leu Ile Val Leu Ser Thr Trp Tyr Met
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Val Ala Leu Leu Cys Arg His Arg Lys Gln Thr Arg His Leu Gln Asp

210

215

220

Thr Ser Leu Ser Arg Lys Ala Ser Pro Glu Gln Arg Ala Thr Arg Ser
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Pro Leu Ser Tyr Leu Met Gln Ser Met Phe Ser Thr Leu Leu Ala Ile
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Arg Asp Ile Ser Leu Ile Ser Leu Met Val Leu Ser Thr Cys Tyr Met
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Glu Val Leu Leu Cys Arg His Arg Asn Gln Ile Gln His Leu Gln Gly
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Thr Asn Leu Ser Pro Lys Ala Ser Pro Glu Gln Arg Ala Thr Gln Thr
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Tyr Ile Gln Ile Phe Gly Val Asp Ile Tyr Ala Thr Val Ser Pro Phe
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Cys Val Arg Val Lys Asn Val
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Val Gln Ile Ile Val Ser His Ser Tyr Ala Thr Val Ser Ser Phe Val
275 280 285

Phe Ile Phe Thr Glu Lys Arg Met Thr Lys Ile Leu Arg Ser Val Cys
290 295 300

Ala Arg Ile Ile Asn Asn
305 310

<210> 12
<211> 278
<212> PRT
<213> Rattus sp.

<400> 12
Phe Ser His Leu Phe Met Leu Phe Glu Lys Asn Arg Ser Lys Pro Ile
1 5 10 15

Asp Leu Tyr Ile Ala Phe Leu Ser Leu Thr Gln Leu Met Leu Leu Ile
20 25 30

Thr Ile Gly Leu Ile Ala Ala Asp Met Phe Met Ser Arg Gly Arg Trp
35 40 45

Asp Ser Thr Thr Cys Gln Ser Leu Ile Tyr Leu Asp Arg Leu Leu Arg
50 55 60

Gly Phe Thr Leu Cys Ala Thr Cys Leu Leu Asn Val Leu Trp Thr Ile
65 70 75 80

Thr Leu Ser Pro Arg Ser Ser Cys Leu Thr Thr Phe Lys His Lys Ser
85 90 95

Pro His His Ile Ser Gly Ala Phe Leu Phe Phe Cys Val Leu Tyr Ile
100 105 110

Ser Phe Gly Ser His Leu Phe Leu Ser Thr Ile Ala Thr Pro Asn Leu
115 120 125

Thr Ser Asp Asn Phe Met Tyr Val Thr Lys Ser Cys Ser Phe Leu Pro
130 135 140

Met Ser Tyr Ser Arg Thr Ser Met Phe Ser Thr Pro Met Ala Ile Arg
145 150 155 160

Glu Ala Leu Leu Ile Gly Leu Ile Gly Leu Ser Ser Gly Tyr Met Val

165 170 175
 Ala Phe Leu Trp Arg His Lys Asn Gln Ala Arg His Leu His Ser Thr
 180 185 190
 Ser Leu Ser Ser Lys Val Ser Pro Glu Gln Arg Ala Thr Arg Thr Ile
 195 200 205
 Met Ile Leu Met Ser Phe Phe Val Val Leu Tyr Ile Leu Glu Asn Val
 210 215 220
 Val Phe Tyr Ser Arg Met Thr Phe Lys Asp Gly Ser Met Phe Tyr Cys
 225 230 235 240
 Val Gln Ile Ile Val Ser His Ser Tyr Ala Thr Ile Ser Pro Phe Val
 245 250 255
 Phe Ile Cys Thr Glu Lys Arg Ile Ile Lys Leu Trp Gly Ser Met Ser
 260 265 270
 Ser Arg Ile Val Ser Ile
 275

 <210> 13
 <211> 31C
 <212> PRT
 <213> Rattus sp.

 <400> 13
 Met Arg Arg Ile Ser Thr Leu Tyr Gly Val Val Asp Lys Gln Ala Ile
 1 5 10 15
 Phe Phe Ser Glu Val Val Ile Gly Ile Ser Phe Asn Ser Ile Leu Phe
 20 25 30
 Leu Phe His Ile Phe Gln Phe Leu Leu Glu Arg Arg Leu Arg Ile Thr
 35 40 45
 Asp Leu Ile Ile Ser Leu Leu Ala Leu Ile His Leu Gly Met Leu Thr
 50 55 60
 Val Met Gly Phe Arg Ala Val Asp Ile Phe Ala Ser Gln Asn Val Trp
 65 70 75 80
 Asn Asp Ile Lys Cys Lys Ser Leu Ala His Leu His Arg Leu Leu Arg
 85 90 95

Gly Leu Ser Leu Cys Ala Thr Cys Leu Leu Ser Ile Phe Gln Ala Ile
 100 105 110

Thr Leu Ser Pro Arg Ser Ser Cys Leu Ala Lys Phe Lys Tyr Lys Ser
 115 120 125

Thr Gln His Ser Leu Cys Ser Leu Leu Val Leu Trp Ala Phe Tyr Met
 130 135 140

Ser Cys Gly Thr His Tyr Ser Phe Thr Ile Val Ala Asp Tyr Asn Phe
 145 150 155 160

Ser Ser Arg Ser Leu Ile Phe Val Thr Glu Ser Cys Ile Ile Leu Pro
 165 170 175

Met Asp Tyr Ile Thr Arg His Leu Phe Phe Ile Leu Gly Ile Phe Arg
 180 185 190

Asp Val Ser Phe Ile Gly Leu Met Ala Leu Ser Ser Gly Tyr Met Val
 195 200 205

Ala Leu Leu Cys Arg His Arg Lys Gln Ala Gln His Leu His Arg Thr
 210 215 220

Ser Leu Ser Pro Lys Ala Ser Pro Glu Gln Arg Ala Thr Arg Thr Ile
 225 230 235 240

Leu Leu Leu Met Ser Phe Phe Val Leu Met Tyr Cys Leu Asp Cys Thr
 245 250 255

Ile Ser Ala Ser Arg Leu Met His Asn Gly Glu Pro Ile His His Ser
 260 265 270

Ile Gln Met Met Val Ser Asn Ser Tyr Ala Thr Leu Ser Pro Leu Leu
 275 280 285

Leu Ile Val Thr Glu Asn Arg Ile Ser Arg Phe Leu Lys Ser Leu Leu
 290 295 300

Gly Arg Thr Val Asp Ala
 305 310

<210> 14
 <211> 307
 <212> FRT
 <213> Rattus sp.

<400> 14

Met Met Asn Pro Val Leu Trp Leu Gln Met Thr Asn Met Ile Ser Tyr
1 5 10 15

Gln Gly Leu Val Arg Thr Phe Pro Asn Ser Ile Leu Phe Phe Ala His
20 25 30

Leu Cys Met Phe Phe Glu Glu Asn Arg Ser Lys Pro Ile Asp Leu Cys
35 40 45

Ile Ala Phe Leu Ser Leu Thr Gln Leu Met Leu Leu Val Thr Met Gly
50 55 60

Leu Ile Ala Ala Asp Met Phe Met Ala Gln Gly Ile Trp Asp Ile Thr
65 70 75 80

Thr Cys Arg Ser Leu Ile Tyr Phe His Arg Leu Leu Arg Gly Phe Asn
85 90 95

Leu Cys Ala Ala Cys Leu Leu His Ile Leu Trp Thr Phe Thr Leu Ser
100 105 110

Pro Arg Ser Ser Cys Leu Thr Lys Phe Lys His Lys Ser Pro His His
115 120 125

Ile Ser Gly Ala Tyr Leu Phe Phe Cys Val Leu Tyr Met Ser Phe Ser
130 135 140

Ser His Leu Phe Val Leu Val Ile Ala Thr Ser Asn Leu Thr Ser Asp
145 150 155 160

His Phe Met Tyr Val Thr Gln Ser Cys Ser Leu Leu Pro Met Ser Tyr
165 170 175

Ser Arg Thr Ser Thr Phe Ser Leu Leu Met Val Thr Arg Glu Val Phe
180 185 190

Leu Ile Ser Leu Met Ala Leu Ser Ser Gly Tyr Met Val Thr Leu Leu
195 200 205

Trp Arg His Lys Lys Gln Ala Gln His Leu His Ser Thr Arg Leu Ser
210 215 220

Ser Lys Ala Ser Pro Gln Gln Arg Ala Thr Arg Thr Ile Leu Leu Leu
225 230 235 240

Met Thr Phe Phe Val Val Phe Tyr Ile Leu Gly Thr Val Ile Phe His
245 250 255

Ser Arg Thr Lys Phe Lys Asp Gly Ser Ile Phe Tyr Cys Val Gln Ile
260 265 270

Ile Val Ser His Ser Tyr Ala Thr Ile Ser Pro Phe Val Phe Val Phe
275 280 285

Ser Glu Lys Arg Ile Ile Lys Phe Phe Arg Ser Met Cys Gly Arg Ile
290 295 300

Val Asn Thr
305

<210> 15
<211> 173
<212> PRT
<213> Homo sapiens

<400> 15
Asn Ile Ser Pro Val Ile Tyr Arg Tyr Arg Leu Met Arg Gly Leu Ser
1 5 10 15

Ile Ser Thr Thr Cys Leu Leu Ser Val Leu Gln Ala Ile Asn Leu Thr
20 25 30

Pro Arg Ser Ser Arg Leu Ala Arg Ser Ser His His Lys Pro Arg Cys
35 40 45

Phe Leu Leu Leu Trp Val Phe His Ile Ser Ile Ser Gly Ser Phe Leu
50 55 60

Val Ser Thr Leu Pro Ser Lys Asn Val Ala Ser Asn Ser Val Thr Phe
65 70 75 80

Val Thr Gln Ser Cys Ser Ala Gly Pro Leu Ser Cys Phe Leu Gly Gln
85 90 95

Thr Ile Phe Thr Leu Met Thr Phe Gln Asp Val Ser Leu Gln Leu Met
100 105 110

Ala Pro Phe Ser Gly Tyr Met Val Ile Leu Leu Cys Arg His Asn Arg
115 120 125

Gln Ser Gln His Leu His Ser Ile Asn Leu Ser Pro Lys Ala Pro Pro
130 135 140

Asp Lys Arg Ala Ile Gln Ser Ile Leu Leu Leu Val Ser Phe Phe Val

145 150 155 160

Phe Met Cys Leu Phe Pro Phe Ala Ala Leu Thr Leu Leu
165 170

<210> 16
<211> 71
<212> PRT
<213> Rattus sp.

<400> 16
Ser Lys Arg Lys Lys Ser Phe Leu Leu Cys Ile Gly Trp Leu Ala Leu
1 5 10 15

Thr Asp Leu Val Gly Gln Leu Leu Thr Ser Pro Val Val Ile Leu Val
20 25 30

Tyr Leu Ser Gln Arg Arg Trp Glu Gln Leu Asp Pro Ser Gly Arg Leu
35 40 45

Cys Thr Phe Phe Gly Leu Thr Met Thr Val Phe Gly Leu Ser Ser Leu
50 55 60

Leu Val Ala Ser Ala Met Ala
65 70

<210> 17
<211> 74
<212> PRT
<213> Rattus sp.

<400> 17
Gly Gln Arg Ser Arg Leu Thr Asp Leu Pro Ile Gly Leu Leu Ser Leu
1 5 10 15

Ile Asn Leu Leu Met Leu Leu Ile Met Ala Cys Ile Ala Thr Asp Ile
20 25 30

Phe Ile Ser Cys Arg Arg Trp Asp Asp Ile Ile Cys Lys Ser Leu Leu
35 40 45

Tyr Leu Tyr Arg Thr Phe Arg Gly Leu Ser Leu Ser Thr Thr Cys Leu
50 55 60

Leu Ser Val Leu Gln Ala Ile Ile Leu Ser
65 70

<210> 18
 <211> 174
 <212> PRT
 <213> Rattus sp.

<400> 18
 Lys Cys Lys Ser Leu Ala His Leu His Arg Leu Leu Arg Gly Leu Ser
 1 5 10 15

Leu Cys Ala Thr Cys Leu Leu Ser Ile Phe Gln Ala Ile Thr Leu Ser
 20 25 30

Pro Arg Ser Ser Cys Leu Ala Lys Ser Thr Gln His Ser Leu Cys Ser
 35 40 45

Leu Leu Val Leu Trp Ala Phe Tyr Met Ser Cys Gly Thr His Tyr Ser
 50 55 60

Phe Thr Ile Val Ala Asp Tyr Asn Phe Ser Ser Arg Ser Leu Ile Phe
 65 70 75 80

Val Thr Glu Ser Cys Ile Ile Leu Pro Met Asp Tyr Ile Thr Arg Asp
 85 90 95

Leu Phe Phe Ile Leu Gly Ile Phe Arg Asp Val Ser Phe Ile Gly Leu
 100 105 110

Met Ala Leu Ser Ser Gly Tyr Met Val Ala Leu Leu Cys Arg His Arg
 115 120 125

Lys Gly Ala Gln His Leu His Arg Thr Ser Leu Ser Pro Lys Ala Ser
 130 135 140

Pro Glu Gln Arg Ala Thr Arg Thr Ile Leu Leu Leu Met Ser Phe Phe
 145 150 155 160

Val Leu Met Tyr Cys Leu Asp Cys Thr Ile Ser Ala Ser Arg
 165 170

<210> 19
 <211> 32
 <212> PRT
 <213> Rattus sp.

<220>

<221> VARIANT
 <222> (3)
 <223> Xaa at position 3 is Leu or Phe

 <220>
 <221> VARIANT
 <222> (4)
 <223> Xaa at position 4 is Ser or Thr or Asn

 <220>
 <221> VARIANT
 <222> (6)
 <223> Xaa at position 6 is Cys or Ser

 <220>
 <221> VARIANT
 <222> (7)
 <223> Xaa at position 7 is Ala or Thr

 <220>
 <221> VARIANT
 <222> (8)
 <223> Xaa at position 8 is Thr or Ala or Ser

 <220>
 <221> VARIANT
 <222> (10)
 <223> Xaa at position 10 is Leu or Met

 <220>
 <221> VARIANT
 <222> (12)
 <223> Xaa at position 12 is Ser or Asn or His

 <220>
 <221> VARIANT
 <222> (13)
 <223> Xaa at position 13 is Val or Ile

 <220>
 <221> VARIANT
 <222> (14)
 <223> Xaa at position 14 is Leu or Phe

 <220>
 <221> VARIANT
 <222> (15)
 <223> Xaa at position 15 is Gln or Trp

<220>
<221> VARIANT
<222> (16)
<223> Xaa at position 16 is Ala or Thr or Met

<220>
<221> VARIANT
<222> (17)
<223> Xaa at position 17 is Ile or Phe

<220>
<221> VARIANT
<222> (18)
<223> Xaa at position 18 is Ile or Thr

<220>
<221> VARIANT
<222> (21)
<223> Xaa at position 21 is Pro or Ser

<220>
<221> VARIANT
<222> (22)
<223> Xaa at position 22 is Arg or Lys

<220>
<221> VARIANT
<222> (23)
<223> Xaa at position 23 is Ser or Lys

<220>
<221> VARIANT
<222> (27)
<223> Xaa at position 27 is Ala or Thr

<220>
<221> VARIANT
<222> (28)
<223> Xaa at position 28 is Lys or Thr

<220>
<221> VARIANT
<222> (29)
<223> Xaa at position 29 is Phe or Tyr

<220>
<221> VARIANT

<222> (31)
 <223> Xaa at position 31 is His or Tyr

 <220>
 <221> VARIANT
 <222> (32)
 <223> Xaa at position 32 is Lys or Asn

 <400> 19
 Arg Gly Xaa Xaa Leu Xaa Xaa Xaa Cys Xaa Leu Xaa Xaa Xaa Xaa
 1 5 10 15

 Xaa Xaa Leu Ser Xaa Xaa Xaa Ser Cys Leu Xaa Xaa Xaa Lys Xaa Xaa
 20 25 30

<210> 20
 <211> 21
 <212> PRT
 <213> Rattus sp.

 <220>
 <221> VARIANT
 <222> (2)
 <223> Xaa at position 2 is Ala or Ser or Val

 <220>
 <221> VARIANT
 <222> (5)
 <223> Xaa at position 5 is Glu or Gln

 <220>
 <221> VARIANT
 <222> (10)
 <223> Xaa at position 10 is Arg or Gln or Glu

 <220>
 <221> VARIANT
 <222> (11)
 <223> Xaa at position 11 is Thr or Ser

 <220>
 <221> VARIANT
 <222> (13)
 <223> Xaa at position 13 is Leu or Met

<220>
 <221> VARIANT
 <222> (14)
 <223> Xaa at position 14 is Met or Leu or Ile

<220>
 <221> VARIANT
 <222> (16)
 <223> Xaa at position 16 is Met or Arg

<220>
 <221> VARIANT
 <222> (17)
 <223> Xaa at position 17 is Ser or Thr

<220>
 <221> VARIANT
 <222> (18)
 <223> Xaa at position 18 is Phe or Leu

<220>
 <221> VARIANT
 <222> (20)
 <223> Xaa at position 20 is Val or Gly

<220>
 <221> VARIANT
 <222> (21)
 <223> Xaa at position 21 is Val or Leu

<400> 20
 Lys Xaa Ser Pro Xaa Gln Arg Ala Thr Xaa Xaa Ile Xaa Xaa Leu Xaa
 1 5 10 15

Xaa Xaa Phe Xaa Xaa
 20

<210> 21
 <211> 9
 <212> PRT
 <213> Rattus sp.

<220>
 <223> Xaa at position 4 is Val or Ile or Leu, Xaa at
 position 6 is Pro or Ser, Xaa at position 7 is Phe
 or Leu, Xaa at position 8 is Val or Leu, Xaa at

position 9 is Phe or Leu

<220>

<221> VARIANT

<222> {4}

<223> Xaa at position 4 is Val or Ile or Leu

<220>

<221> VARIANT

<222> {6}

<223> Xaa at position 6 is Pro or Ser

<220>

<221> VARIANT

<222> {7}

<223> Xaa at position 7 is Phe or Leu

<220>

<221> VARIANT

<222> {8}

<223> Xaa at position 8 is Val or Leu

<220>

<221> VARIANT

<222> {9}

<223> Xaa at position 9 is Phe or Leu

<400> 21

Tyr Ala Thr Xaa Ser Xaa Xaa Xaa Xaa

1

5